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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,227	03/19/2002	Nigel Bruce Aldridge	2101/50770	9920
7590 05/25/2005				
Crowell & Moring Intellectual Property Group PO Box 14300 Washington, DC 20044-4300		EXAMINER PAK, SUNG H		
		ART UNIT PAPER NUMBER 2874		

DATE MAILED: 05/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/088,227	<b>Applicant(s)</b> ALDRIDGE ET AL.	
	<b>Examiner</b> Sung H. Pak	<b>Art Unit</b> 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20,22-25,33-50,52-56 and 64 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20,22-25,33-50,52-56 and 64 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/14/2005 has been entered.

### ***Response to Amendment***

In view of the Request for Continued Examination, all pending claims (presented in the amendment filed 2/14/2005) have been carefully reconsidered. Upon further reconsideration, the previous ground of rejection is withdrawn in view of the amended limitations.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5, 11-20, 22-25, 33-37, 42-50, 52-56, 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2 322 479 A in view of EP 0 272 027.

'479 publication discloses an optical device with all the limitations set forth in the claims, except it does explicitly teach the use of optical processing means provided on a discrete micro substrate, wherein the optical processing means is embedded within a composite.

Specifically, '479 publication discloses: an optical coupling for connecting a first optical transmission means (25F1 in Fig. 4) embedded within a composite to a second optical transmission means external to the composite (25F2, Fig. 4), the coupling comprising: means for locating the position of the first optical transmission means embedded within the composite (Fig. 10 and page 15 lines 19-27); a passageway formed within the composite to the embedded first optical transmission means (Fig. 10-11); an optical connection established between the first and second optical transmission means at the intersection of the passageway and the first optical transmission means (Fig. 12); wherein the passageway comprises a drilled or machined orifice through the composite from an exterior surface thereof to the first optical transmission means to a depth sufficient to sever the first optical transmission means (page 15 lines 19-27); a protective cap provided in the passageway (page 12 lines 25-27); wherein the tip of the first transmission means and the adhesive layer being the position marker and the depth marker to indicate the position and the depth of the passageway to be formed (Fig. 10, page 15 lines 19-27); an

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interface means alignable with the passageway to be in optical communication with first optical transmission means at the optical interface surface, the interface means being arranged to be accessible to the second optical transmission means (26C in Fig. 12); beam-steering resin block disposed in the composite (26C in Fig. 12); the end of the first optical transmission means being slanted and coated with metallic coating to provide beam splitting function within the composite (page 12 lines 4-8).

However, '027 publication explicitly teaches the use of an optical processing means (optical transmission material '204' in Fig. 2) provided on a discrete micro substrate (optical plug '210'), optically coupled with optical transmission means wherein the optical processing means and the micro substrate are embedded within a composite (Fig. 2). This arrangement is advantageous and desirable in the art because optical transmission means is completely encapsulated, and better protected from harsh environmental factors such as moisture, debris, dust, etc. Further embedding the processing means with the transmission means prevents possible optical misalignment between the two components, and enhances the coupling efficiency of the optical signal (column 4 lines 51- column 5 lines 4).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of '479 publication to have optical processing means disposed on a discrete micro substrate embedded within a composite.

Regarding claims 14-16, 45-47, the '479 publication, in view of the '027 publication, renders the limitations set forth in the claims obvious as discussed above, except the use of metallic coating as a position marker. However, the use of metallic position marker is well

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known and commonly used in the optical fiber coupling art. Such metallic position markers are well known to be advantageous and desirable because it allows for a simple and cost effective way of providing alignment markings that are easy to identify. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of '479 publication to have metallic markings.

Regarding claims 24-25, 54-55, the '479 publication, in view of the '027 publication, renders the limitations set forth in the claims obvious as discussed above, except the use of a graded index lens for collimating light beams. However, the use of GRIN lens for collimating light beams for enhancing optical coupling is well known and common in the fiber coupling art. GRIN lens are well known to be advantageous and desirable in optical coupling arrangement because it allows the transmitted light to be distributed evenly across the incident medium. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of '479 publication to have GRIN lens.

Claims 6-10, 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2 322 479 A in view of EP 0 272 027 as applied to claims above, and further in view of Allen et al (US 5,500,913).

'479 publication, in view of '027 publication, render all the limitations set forth in the claims obvious as discussed above, except the prior art does not explicitly teach the use of laser beams for machining a hole through the composite.

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Allen, on the other hand, explicitly discloses the use of laser beams, which have wavelengths different from the optical signal transmission wavelength, for machining a groove on the optical fiber (Fig. 5, column 7 lines 28-41). The use of laser beams for micro-machining optical devices is advantageous and desirable because it allows for precision cutting and drilling which is not capable through traditional mechanical machining. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of '479 publication to utilize laser beams for machining a hole through the composite.

### ***Response to Arguments***

Starting on page 16 of the applicants' response filed 2/14/2005, it is argued that neither the '479 publication nor the Updegrove patent disclose "a discrete micro substrate embedded within the composite" as claimed in the amended claims of the instant application.

In view of the amendment filed 2/14/2005, and the Request for Continued Examination filed 3/09/2005, the previous ground of rejection is withdrawn and a new ground of rejection is provided in this office action. The examiner respectfully submits that the EP '027 explicitly teaches "a discrete micro substrate embedded within the composite" as claimed in the instant application, and the claimed subject matter is rendered obvious over GB '479 in view of EP '027 as discussed above.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sung H. Pak  
Patent Examiner  
Art Unit 2874

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